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ABSTRACT

The Eastern Iowa Community College District (EICCD), a multicollege district serving eight counties in east central Iowa, has developed a procedure for conducting labor market assessments to provide the data necessary for their long-range decision-making and strategic planning efforts. The major purpose of these assessments is to provide direction to the development and revision of competency-based vocational programs. Since the information obtained from the assessment is used in making programmatic as well as budgetary decisions, the assessment process was developed in such a way as to give faculty and administrators a sense of ownership of the process. All survey and assessment efforts are managed by the EICCD Office of Academic Affairs and Planning. To date, assessments have been conducted in 19 occupational/program areas. The following common core of information is collected in each occupational/program area assessed: demographics of local businesses and industries, current and projected local employment needs, entry-level job requirements, minimal educational levels required, current wage/salary for new employees, current employees' continuing education needs, and emerging trends in the specific occupational areas. Questions unique to each area assessed (as identified by the assessment task force) are also included in the individual assessments. (MN)

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LABOR MARKET ASSESSMENTS:

AN ESSENTIAL DATA ELEMENT FOR

QUALITY DECISION MAKING AND STRATEGIC PLANNING

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SYNOPSIS

Budget cutbacks and financial limitations, coupled with changing employment needs and the increasing use of the high technologies, require systematic assessment of the labor marketplace. This is of particular importance to community and technical colleges whose primary mission is to provide vocational programs which prepare individuals for successful entry and performance in specific occupations. The Eastern Iowa Community College District has conducted labor market assessments in nineteen occupational fields. The results of these assessments provide information for decision making regarding program maintenance, modification, or termination; facilities, equipment and material needs; new program and training opportunities; and, professional development of college staff. The results are essential to the definition and validation of program-exit competencies. The surveys are designed for local adaptation.

All surveys are designed for tabulation and analysis using the SPSS; they are designed for easy modification and

adaptation by other educational institutions. The surveys conducted by the EICCD have served as models for over 165 community and technical colleges in the U.S. and Canada.

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INTRODUCTION

Budget cutbacks and financial limitations, coupled with changing employment needs, and the increasing use of the high technologies, require an on-going assessment of the labor marketplace. This is especially true of community and technical colleges whose primary mission is to prepare individuals for successful entry and performance in specific occupations. The Eastern Iowa Community College District (EICCD) is no exception.

The EICCD is located in the heart of the farm belt and is the center of the farm implement industry. Its recovery from the economic recession which has gripped the nation's agricultural sector has required the retooling of the existing industries and aggressive economic development efforts. Faced with cutbacks in state funding, enrollment drops in its trade and industrial programs, and the need to develop programs appropriate for the changing manufacturing

and industrial base of its community, the EICCD needed to assess the needs of the job marketplace and the degree to which its programs could meet these needs. A multitude of questions had to be answered and the assistance of the advisory councils for each of its vocational programs proved inadequate. Only by going directly to the labor marketplace could the EICCD have accurate local information which could direct programmatic and budgetary decision making. The current economic climate of fiscal restraint necessitates timely and accurate data regarding program relevancy to direct an institution's strategic planning and decision making.

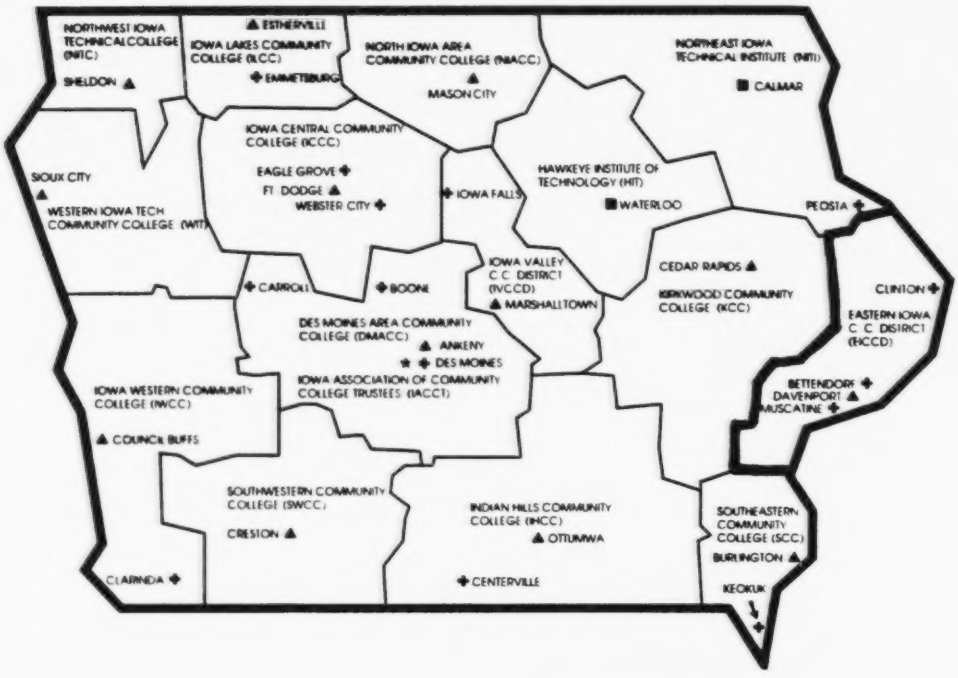
The purpose of this paper is to describe the process used by the EICCD in the design, development, implementation and use of these labor market assessments; this paper is not a report of the results of the specific assessments conducted.

The Eastern Iowa Community College District. The EICCD is a multi-college district serving eight counties in east-central Iowa, and is comprised of three colleges: Scott Community College, Clinton Community College, and Muscatine Community College. (Figure 1) Each is a comprehensive community college with Arts and Science college transfer programs, Vocational/Technical programs, and Community/

Continuing Education offerings. In FY88, unduplicated credit headcount totalled 8,178, with an FTEE of 5,182; Community Education enrollment totalled 39,239.

Figure 1

IOWA'S COMMUNITY COLLEGES



The EICCD began its labor market assessment process in 1984 with a general business and industry survey of a random stratified sample of three hundred businesses and industries. The results of this survey provided an indication of those industries projecting growth or decline; however, in order to make programmatic and budgetary decisions, more information was required. Thus, the EICCD

undertook the task of conducting labor market assessments in nineteen occupational fields related to its programs.

Purpose of the Assessments. The major purpose of the local labor market assessments conducted by the EICCD is to provide direction to the development and revision of competency-based vocational programs. The results also provide information upon which decisions are made regarding the maintenance, modification, or termination of existing programs; new program development; facility, equipment and material needs; and college staff development activities. The results assist in determining the relationship of a program's student outcomes to employers' needs; they are essential in the definition and validation of program-exit competencies. Thus, the assessment results are a key data source for developing and maintaining quality and relevant vocational/technical programs.

These assessments are an integral part of The EICCD Program Evaluation and Development Process and are an essential supplement to national and regional employment/ labor data. Linked to the EICCD's environmental scanning capabilities, the assessments identify the emerging employment trends and the skills and knowledge needed for successful job performance. Additionally, they serve as a vehicle for informing businesses and employers about the

EICCD, its occupational programs, and its commitment to self-improvement and excellence; they also provide an opportunity for the EICCD to compare business and industrial standards with institutional occupational program standards. We have found that the involvement of industrial and business experts in the assessment process has also resulted in donations of equipment to vocational programs by local businesses and industries, as well as an increased listing of job opportunities for program graduates by these employers.

THE ASSESSMENT

Assessment Development. Since information obtained from the assessment is used in making programmatic as well as budgetary decisions, it is imperative that faculty and college administrators have a sense of ownership in the process. In order for faculty and administrators to "trust" the data and results, they are involved in the determination of specific questions to be asked, the identification of the target group from whom responses are obtained, the compilation of competencies that may be needed by entry-level personnel to function successfully in the specific occupation, and the interpretation of the data. Thus, an Assessment Task Force for each occupational area is formed, consisting of faculty from the program, college administrators, and employers.

One faculty member from each occupational field is designated as a Research Assistant. A content expert in the occupational/program area, the faculty Research Assistant coordinates the work of the Assessment Task Force. The Research Assistant writes the first draft of the survey. The final draft is developed after consultation with EICCD survey and research specialists.

All survey and assessment efforts are managed by the EICCD Office of Academic Affairs and Planning. These efforts include survey layout and proofreading; checking the survey format for computerized tabulation and analysis; printing, mailing and receipting the surveys; writing the computer program for data tabulation and analysis; assisting in the interpretation of data; and, reporting and distributing the results.

Occupational/Program Areas Assessed. Assessments have been conducted in nineteen occupational/program areas:

1. drafting
2. sales
3. computer-related
4. health-related
5. custodial and building maintenance
6. radiologic technology
7. interior design
8. automotive technology
9. electronics
10. hazardous materials technologies
11. heating, ventilation and air conditioning
12. auto body repair
13. diesel technology
14. farm management
15. feed and fertilizer marketing
16. secretarial/clerical
17. accounting
18. printing and graphic communications
19. welding

Survey Design. A common core of information is collected regarding each occupational/program area. This includes:

- The demographics of the local businesses and industries.
- The current and projected local employment needs in the occupational area.
- The required entry-level competencies of new employees.
- The minimal educational level and work experience required of new employees.
- The current wage or salary of new employees.
- The continuing education needs of current employees.
- The emerging trends in the specific occupational areas.

The assessment also includes questions unique to the occupational field that are identified by the Assessment Task Force. Examples include asking the respondents their perception to such trends as:

- Computer-Aided Design/Computer-Aided Manufacturing (CAD/CAM) in the drafting field.
- Computer-aided design in the interior design field.
- Computerized controls and systems in residential and commercial heating and air conditioning.
- I-CAR (Iowa Collision and Repair) certification of automotive body/collision repair technicians.
- Automotive Service Excellence (ASE) certification of automotive mechanics and technicians.

- Satellite communications and microcomputer repair in the electronics field.
- The multi-disciplined medical assistant in the health occupations.
- Geriatric care in the nursing field.
- Microcomputer software specialties in the accounting and secretarial fields.

The surveys are designed for replication by other educational institutions. With minimal modification, questions unique to local needs and interests can be accommodated.

The first three assessments conducted by the EICCD were in the occupational/program areas of drafting, sales, and custodial and building maintenance. Each of these surveys was divided into three parts:

Section A requested information from the respondent regarding the characteristics of the business or industry.

Section B listed the typical competencies needed by entry-level personnel in the occupational area. Each respondent indicated if the competency is required of new employees. The competency list also included entry level skills projected to be required of employees in the new or emerging areas of a given occupational field.

Section C requested information regarding minimum educational level and work experience required and preferred by employers, the number of immediate and projected full-time openings in specific job classifications, special equipment and facilities requirements of certain occupations, the emerging and perceived trends in the occupational field, the continuing education needs of existing employees, company policy regarding employee participation in continuing education and skill upgrading activities, and certification or licensing requirements of employees.

The drafting, sales, and custodial and building maintenance surveys requested the information outlined in the three sections above. Review of these results indicated that the competencies listed in Section B were incomplete. We learned that the information provided in Section C related to immediate and projected employment needs, future occupational trends, specific equipment and facility needs, and certification or licensing requirements is essential in compiling a complete and up-to-date list of competencies required of entry-level employees. Thus, with the exception of the health-related occupations, all further assessments are divided into two surveys:

1. The initial survey contains items listed in Sections A and C above and is sent to all locally known employers in the occupational field. The data collected indicate the number of employees to be hired immediately, as well as projected employment needs. The information collected in this survey related to employment needs and occupational trends is considered in the design of items on the second survey.

2. The second survey is designed to determine the competencies required of entry-level employees in the occupational field. Data are collected from employers who indicated on the first survey that they intend to hire employees in the specific occupational field. The Assessment Task Force reviews the results of the initial survey giving special attention to both the differences in characteristics of the respondents, their requirements for employees with generalized and specialized skills and knowledge, and the recent and projected changes in the occupational field. The Assessment Task Force also examines related research, DACUM charts, and competency-based curricular materials in the program. The second survey consists of the list of competencies

compiled by the Task Force; the respondents are asked to rate each competency on three variables.

1. importance of the competency
2. frequency of use on-the-job
3. immediacy of use

This survey also provides space for the respondents to write in additional competencies they require new hires to have.

Figure 2 provides an example of the competency rating scales, and is taken from the Radiologic Technology survey.

Health-Related Occupations Assessment Survey. The assessment of the health-related occupations was another matter. What occurred in the assessment of the health-related area emphasizes the need for active participation of Task Force members. The Health-Related Occupations Task Force determined it was necessary to collect information from three groups of employers regarding their hiring and continuing education needs, as well as to collect information from individuals currently holding licenses and certification in the health-related occupations. Thus, an assessment model consisting of four surveys, one for each of the following target populations in the EICCD service area was developed:

Figure 2

Radiologic Technology

	Order of Importance to New Employee	How Soon After Starting Job Does Employee Use Skill	How Often Does The New Employee Use Skill
	1. Extremely important 2. Very important 3. Important 4. Some importance 5. Not important 6. Not Used	1. Within first week 2. After 3 months 3. After 9 months 4. After 1 year 5. Not Used	1. Daily 2. Weekly 3. Monthly 4. Yearly 5. Not Used
Technical Knowledge			
1. Perform basic mathematical functions.	1 2 3 4 5 6	1 2 3 4 5	1 2 3 4 5
2. Operate radiographic imaging equipment.	1 2 3 4 5 6	1 2 3 4 5	1 2 3 4 5
3. Operate Accessory devices.	1 2 3 4 5 6	1 2 3 4 5	1 2 3 4 5
4. Position imaging system to perform radiographic examinations and procedures.	1 2 3 4 5 6	1 2 3 4 5	1 2 3 4 5
5. Process radiographs.	1 2 3 4 5 6	1 2 3 4 5	1 2 3 4 5
6. Determine exposure factors to obtain diagnostic quality radiographs.	1 2 3 4 5 6	1 2 3 4 5	1 2 3 4 5
7. Adapt exposure factors when appropriate	1 2 3 4 5 6	1 2 3 4 5	1 2 3 4 5
8. Evaluate radiographic images for appropriate image quality.	1 2 3 4 5 6	1 2 3 4 5	1 2 3 4 5
Positioning Skills			
9. Demonstrate knowledge of human structure, function and pathology.	1 2 3 4 5 6	1 2 3 4 5	1 2 3 4 5
10. Position patient to perform radiographic examinations and procedures.	1 2 3 4 5 6	1 2 3 4 5	1 2 3 4 5
11. Modify standard procedures to accomodate for patient condition and other variables.	1 2 3 4 5 6	1 2 3 4 5	1 2 3 4 5
12. Evaluate radiographic images for appropriate positioning.	1 2 3 4 5 6	1 2 3 4 5	1 2 3 4 5

1. Health-care professionals holding active licenses (excluding medical doctors and chiropractors)
2. Physicians' offices
3. Long-term health care facilities
4. Hospitals

The purpose of the four surveys was to gather information relevant to employment trends and educational needs in the health field. The collection of data utilized a variety of techniques, depending upon the target population: mail survey, telephone survey, and personal interview.

Data Collection, Tabulation, and Analysis. The data on the first survey on the entire population of local employers within a given occupational field is collected by written survey disseminated through the mail. Generally, if an employer has not responded by a specified date, they are sent another copy of the survey to complete. Of the nineteen different surveys we have conducted, rate of returns range from 30% to 100%.

The second survey deals with the competencies required of entry-level employees. It is completed by employers who, on the first survey, indicated hiring or projecting to hire employees in the specific occupational field. These surveys are distributed to the target population in one of a variety of ways. The most common method is by a mailing to the selected employers. A second method is to invite the

employers to the campus for a meeting in which the results of the first survey are explained and the second survey is distributed and completed.

In addition to collecting the information that the college needs, there are some added benefits of having the employers on the college campus. This method provides to employers an opportunity to discuss with the college faculty and administrators the trends emerging in the occupational field as well as those competencies required for admission to both the college and to the program. It also provides an opportunity for the employers to tour the college laboratories and to gain an interest in hiring the graduates of the program and donating equipment and materials.

All surveys are formatted for tabulation and analysis, utilizing the Statistical Package for the Social Sciences (SPSS).

ASSESSMENT RESULTS

The results of these assessments provide valuable information regarding local employment needs and trends in specific occupational areas. For each specific occupational area, information is collected which describes the employers, the number of immediate and projected job openings in specific job classifications, the level of

education and the work experience required of the new employees, knowledge and competencies required of new hires, and local and national trends in the specific occupation.

The information garnered from these assessment efforts is utilized by the EICCD in its program evaluation and development process. The employment data provide the basis for validating the continued offering of a program, its revision or termination. The entry-level employment competencies are used to define the minimal program-exit competencies to be required of program graduates. The local and national trends indicated are helpful in determining new directions for existing programs, and for new programs to be developed. An example of two new programs developed by the EICCD as a result of this process are the Hazardous Materials Technology Program, and the Graphic and Printing Communications Program. In both cases, the assessment results were vital to the success of our proposals for funding from federal and state agencies for curriculum development and program implementation.

The results of these assessments provide the basis of the Equipment Acquisition and Facilities Remodeling Plan developed by the EICCD. Additionally, the Instructional and the Administrative Councils of the EICCD meet jointly with the Chancellor twice a year to review the results of the

assessments and the Equipment Acquisition and Facilities Remodeling Plan to make programmatic and budgetary decisions.

In addition to providing information regarding the knowledge and skills required of entry-level employees, these assessments also indicate new knowledge and skills required of college faculty. The yearly evaluation of EICCD faculty includes the formulation of a staff development plan which provides for the acquisition of these knowledge and skills.

These assessments also provide information related to skill upgrading and retraining opportunities for existing employees; the number and variety of in-house training and continuing education programs offered for current employees of area businesses and industries has increased as a result of these assessments.

The EICCD has discovered some unintentional benefits of having conducted these assessments. The information collected through these assessments is helpful not only to the faculty and the academic leaders of the colleges in the revision of their programs, but is useful in the job placement of program graduates. The EICCD has had a 22% increase in the number of employer-initiated job openings advertised at the college for those vocational technical

programs of which assessments have been conducted. Followup studies conducted of the employees of program graduates indicate high satisfaction with their skill levels and performance.

The involvement of employers in both the completion of the surveys and in discussions related to the competencies required of entry-level employees fosters communication and the input of employers in the program's design. The EICCD has experienced an increase in equipment and materials donations to its vocational programs as a result of increased employer involvement in the definition and validation of program competencies.

RECOMMENDATIONS FOR LOCAL ADAPTATION

The EICCD has received requests from approximately 120 community and technical colleges regarding the development and use of these labor market assessments. With minor modifications, they are being used by technical and community colleges in the United States and Canada in assessing the needs of local labor markets regarding specific occupational fields. The experience that the EICCD has had in the design, implementation and use of the results indicates the following recommendations for other institutions planning to undertake a similar endeavor.

- An institution should have a clear purpose as to why it is assessing the local labor marketplace. Such assessments should be undertaken to assist the institution in its assurance of quality and relevant educational vocational/technical programs and an as essential data element for decision making and planning.

- Even though the surveys developed by the EICCD can be easily modified for local adaptation, we recommend that other institutions form an Assessment Task Force for each specific occupation for which they wish to conduct an assessment. This will foster ownership in and use of the results in program and curriculum development and revision efforts, and input from local employers.

- A common core of questions should be developed which, with minor modification, can be used on surveys for most occupational fields. This will facilitate the development of the surveys.

- Our experience at the EICCD indicates that two surveys should be developed as a part of an assessment of the local labor market in a specific occupation. As described in this article, an initial survey collecting demographic information about the

employer, immediate and projected employment needs, use of the technologies, and local and national trends in the occupational field should be conducted. Use of this information will assist in the development of the second survey which collects information regarding competencies required of entry-level employees. Only those employers who indicate on the first survey that they are or will be hiring people within the occupational field are sent the second survey.

- Survey layout, printing, data collection and analysis, report editing, and the printing and distribution of the results should be tasks removed from the Assessment Task Force. The assignment of these functions to an office of institutional research or academic affairs and planning fosters consistency in the collection of data and the interpretation of the results.

As educational institutions strive to offer relevant and high-quality vocational/technical programs, it is imperative that they keep abreast of the local and national job market. The local labor market assessments conducted by the EICCD provide a valuable source of information to an institution in the development and revision of its vocational/technical programs.